



PRODUCT SAFETY DATA SHEET PRODUCTS: DAN M4-A / W4-A

SECTION 1: IDENTIFICATION

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| PRODUCT NAME | Marine Safety Light Systems DAN M4-A / W4-A |
| MANUFACTURERS NAME | DANIAMANT APS |
| DESCRIPTION | Alkaline cell powered marine safety light system. The battery cells are hermetically sealed pressurised primary Alkaline Manganese Dioxide and as supplied are protected from external environment by a moulded plastic casing. In this state the units constitute no definable hazard to health. However disassembly, abuse or destruction of the battery cell will expose the contents and the following Health and Safety Hazards. |

SECTION 2: INFORMATION OF INGREDIENTS

HAZARDOUS COMPONENTS:

| | CAS NUMBER | % OPTIONAL | OSHA/PEL | ACGIH TLV 5 TEL |
|---------------------------|------------|------------|----------|--------------------|
| Manganese Dioxide | 1313-13-9 | 35-40% | N/A | N/A |
| Zinc | 7440-66-6 | 10-25% | N/A | N/A |
| Potassium Hydroxide (35%) | 1310-58-3 | 5-10% | N/A | N/A |

Reference : Sax's dangerous properties of industrial materials.

NOTE: This product does not contain asbestos.

SECTION 3: HAZARD IDENTIFICATION

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| Critical Hazards to man: | If battery leaking, exposure to caustic ingredients may occur. |
| Critical Hazards to the environment: | Dispose of battery properly (See Section 13). Contains mercury compounds which may present a hazard to aquatic environments. |
| Other information: | Keep batteries away from small children. |

SECTION 4: FIRST AID MEASURES

In the unlikely event of the battery becoming damaged the user may come into contact with the above components.

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| GENERAL ADVICE: | These chemicals and metals are contained in a sealed can. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused. Contains concentrated (35%) potassium hydroxide, which is caustic. Anticipated potential leakage of potassium hydroxide is 2 to 20 ml, depending on battery size. A similar amount of zinc/zinc oxide may also leak. |
| INHALATION: | If inhaled respiratory and eye irritation may occur if fumes are released due to heat or an abundance of leaking batteries. Remove to fresh air. Contact physician if irritation persists. |
| SKIN: | Irritation, including caustic burns/injury, may occur following exposure to a leaking battery. Irrigate exposed skin with copious amounts of clear, tepid water for at least 15 minutes. If irrigation, injury or pain persists, consult a physician. |
| INGESTION: | Not anticipated due to size of batteries; choking may occur with the smaller AAA battery. Irritation, including caustic burns/injury may occur following exposure to a leaking battery. Rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes. Consult a physician immediately for treatment and to rule out involvement of the oesophagus and other tissues. |
| NOTES TO PHYSICIAN: | The primary acutely toxic ingredient is concentrated (35%) potassium hydroxide. Anticipated potential leakage of potassium hydroxide is 2 to 20 ml, depending on battery size. Other materials are either inert or have low hazard associated with their exposure. |

SECTION 5: FIRE FIGHTING MEASURES

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| Extinguishing Media: | As appropriate for adjacent fire. |
| Special Fire Fighting Procedures: | In fires involving large quantities of product, use self-contained breathing apparatus and full protective clothing. |
| Further information: | Hazardous decomposition products may be produced. |

SECTION 6: ACCIDENTAL RELEASE MEASURES

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| Personal Precautions: | Notify safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured batteries. Avoid eye or skin contact and inhalation of vapours. Increase ventilation. Clean up personnel should wear appropriate protective gear. |
| Environmental Precautions: | Not applicable. |
| Methods for cleaning up: | Not applicable. |

SECTION 7: HANDLING AND STORAGE

Handle and store in cool, well-ventilated area. Keep out of direct sunlight and away from heat sources. DO NOT short or install cells incorrectly. Batteries may explode, pyrolyze or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Do not mix battery systems, such as alkaline and zinc carbon, in the same equipment. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

External corrosion of the Nickel plated can and tags could result in the formation of toxic metal salts. Avoid ingestion. Observe personal hygiene. Wash hands after contact. Use neoprene, rubber or nitrile gloves and safety glasses when handling leaking batteries.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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| APPEARANCE | Light in a plastic housing. |
| STABILITY IN WATER | Product is waterproof. |
| REACTION WITH WATER | Only if damaged. |
| BOILING POINT | N/A |
| VAPOUR PRESSURE mm/hg | N/A |
| VAPOUR DENSITY | N/A |
| SOLUBILITY IN WATER | Not soluble in water |
| APPEARANCE & ODOUR | N/A |
| SPECIFIC GRAVITY | N/A |
| MELTING POINT | N/A |
| EVAPORATION POINT | N/A |

SECTION 10: STABILITY AND REACTIVITY

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| HAZARDOUS DECOMPOSITION REACTIONS | Thermal degradation may produce hazardous fumes of zinc and manganese; hydrogen gas; caustic vapours of potassium hydroxide and other toxic by-products. |
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SECTION 11: TOXICOLOGICAL INFORMATION

NONE, unless battery ruptures, then see Section 2.

SECTION 12: ECOLOGICAL INFORMATION

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|----------------------------------|---|
| MAMMALIAN EFFECTS | None known if used / disposed of correctly. |
| ECO-TOXICITY | None known if used / disposed of correctly. |
| BIOACCUMULATION POTENTIAL | None known if used / disposed of correctly. |
| ENVIRONMENTAL FATE | None known if used / disposed of correctly. |

SECTION 13: DISPOSAL

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| DISPOSAL | Dispose in accordance with appropriate regulations. Do not incinerate, since batteries may explode at excessive temperatures. |
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SECTION 14: TRANSPORT INFORMATION

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| UN Hazard Code | None. |
| UN Number | None. |
| UN Name | None. |
| Packing Group | None. |
| Total Battery Weight | 23.2g (Weight of Individual Cell 11.6g) |

SECTION 15: REGULATORY INFORMATION

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|-----------------------|---|
| Classification | Not controlled under ADNR (Europe) |
| Hazard Symbol | None. |
| Risk Phrases | This product is not classified according to the EU regulations. |

SECTION 16: OTHER INFORMATION

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| | N/A |
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The above information is given based on the present state of our knowledge of this product and is, to the best of our knowledge and belief, accurate at the time of publication. No warranty given, either express or implied, with respect to the accuracy, reliability or completeness of the information contained herein and we will assume no liability resulting from its use. The users must satisfy themselves that the information provided is entirely suitable for their particular use.

24 June 2016

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Position indicating lights for life-saving appliances: (c) for lifejackets

with type designation(s)
M4-A and W4-A

Issued to
Daniamant A/S
Slangerup, Denmark

is found to comply with the requirements in the following Regulations/Standards:
Regulation (EU) 2019/1397,
item No. MED/1.2c. SOLAS 74 as amended, Regulation III/4, III/7, III/22, III/26, III/32,
III/34 & X/3, LSA Code, 2000 HSC Code 8

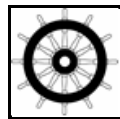
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until 2024-10-10.

Issued at Hamburg on 2019-10-11

DNV GL local station:
Denmark CMC

Approval Engineer:
Nicolay Horn



Notified Body
No.: 0098

for DNV GL SE

Gerhard Aulbert
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the **production module certificate (module D, E or F)**, as allowed by the "Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment", signed February 27th, 2004.

The mark of conformity may only be affixed to the above type approved equipment and a **Manufacturer's Declaration of Conformity** issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU. This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL SE of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled. Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

Job Id: 344.1-009909-1
Certificate No: MEDB000060K

Product description

Position-indication lights for life jackets – Type M4-A, W4-A

Application/Limitation

Lights powered by batteries shall be marked with means of determining their age or the date by which they are to be replaced.

For compliance with SOLAS Regulation III/35 and III/36, fully detailed operations and maintenance manuals shall be supplied with each light.

Type Examination documentation

Daniamant Technical file TF-DK-20, M4-A and W4-A Lifejackets Light – Revision 01
Installation and Maintenance Instruction for Dan M4-A and W4-A lifejacket light, Issue 04 (D0647)

Test reports:

| Report No | Title | Date |
|--------------------|---|------------|
| 4-2015 | Evaluation and Test Report for Lifejackets lights M4-A and W4-A | 2015-04-19 |
| Appendix to 4-2015 | Evaluation and Test Report for Lifejackets lights M4-A and W4-A | |
| DELTA-L102798-4719 | Determination of (x,y) colour coordinates and determination of luminous light distribution emitted from lifesaving device | 2016-03-21 |

Tests carried out

-IMO Resolution MSC.81(70), part 1, as amended by Resolution MSC.200(80), Resolution MSC.226(82) and Resolution MSC.323(89)
-IEC 60945:2002 incl. IEC 60945 Corr. 1 (2008)

Marking of product

To be marked with information requested by the LSA Code Paragraph 1.2.2.9 and 1.2.3

- Manufacturer name
- Type identification
- Serial or Lot number
- Date of expiry
- USCG Approval Number: USCG 161.112/EC0098/ MEDB000060K

END OF CERTIFICATE